



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/303,791	04/30/1999	RORY MATTHEW JOHNSON	G-00263/US	8861

7590 03/29/2004

Michael T. Raggio  
Dinnin & Dunn, P.C.  
2701 Cambridge Court  
Suite 500  
AUBURN HILLS, MI 48326-2362

EXAMINER

GARCIA, ERNESTO

ART UNIT	PAPER NUMBER
----------	--------------

3679

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/303,791

Applicant(s)

JOHNSON, RORY MATTHEW

Examiner

Ernesto Garcia

Art Unit

3679

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 8-13 is/are pending in the application.
- 4a) Of the above claim(s) 2,9 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,4,8,10,11 and 13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

Applicant's corrected election of species II, Figures 6a-6c, in Paper No. 18 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

Claims 2, 9 and 12 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 18.

The requirement is still deemed proper and is therefore made FINAL.

Claims 3, 10 and 13 should not have been marked as withdrawn. These claims read on the elected species II, i.e., the radially distributed apertures 60 include radially distributed cut-outs (claims 3 and 10) and the radially distributed cut-outs 60 are on a radially inward facing surface (unreferenced, but shown in Figures 6a-6c; claim 13). Claims 3, 10 and 13 have been treated on the merits since they read on the elected embodiment.

***Specification***

A substitute specification is required. The pages of the specification include ghost characters between the lines of text and some of the text is obliterated. Thus making the specification difficult to read and scan electronically. An example of the problems is illustrated in attached page 8 of the specification. Accordingly, a substitute specification is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 3 and 4 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 1 recites that "the apertures ... are approximately 30% to 70% of the crimping lip thickness" in lines 5-6. However, there is no support for the limitation in the original specification. The original specification only describes 35% to 70% without any approximation on page 11 in lines 20-21.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sankey et al., 4,132,422 (see marked-up attachment), in view of Welschof et al., 4,747,805 (see marked-up attachment).

Regarding claim 1, Sankey et al. discloses, in Figure 1, a constant velocity universal joint boot comprising, at one end **A8**, a cylindrical neck member **37** and an annular upturned member **30** at the other end **A7**. The annular upturned member **30** defines a longitudinal axis **A3** and includes a crimping lip **31**. The boot is non-convoluted. The neck member **37** is for receiving a shaft. However, Sankey et al. fails to disclose the crimping lip **31** having radially distributed apertures oriented parallel to the longitudinal axis **A3** and sized approximately 35% to 70 % of a crimping lip thickness. Welschof et al. teach, in Figures 3 and 4, a crimping lip **2d** having radially distributed apertures **2e** oriented parallel to a longitudinal axis **1c** and sized approximately 35% to 70% of a crimping lip thickness **A6** to increase resiliency of the

Art Unit: 3679

boot to increase a sealing effect (col. 3, lines 62-68). Therefore, as taught by Welschof et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to include radially distributed apertures oriented parallel to the longitudinal axis and size the apertures approximately 35% to 70% of the crimping lip thickness to increase resiliency of the boot to increase a sealing effect.

Regarding claim 4, Sankey, as modified above, fails to disclose the annular upturned member **30** being formed of a thermoplastic material. Welschof et al. teach forming an upturned member **2** from HYTREL, a thermoplastic material (see Collins et al., 5,236,394; col. 2, lines 65-68 to show that HYTREL is a thermoplastic material).

Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sankey et al., 4,132,422 (see marked-up attachment), in view of Burnett, 3,195,360.

Regarding claim 1, Sankey et al. discloses, in Figure 1, a constant velocity universal joint boot comprising, at one end **A8**, a cylindrical neck member **37** and an annular upturned member **30** at the other end **A7**. The annular upturned member **30** defines a longitudinal axis **A3** and includes a crimping lip **31**. The boot is non-convoluted. The neck member **37** is for receiving a shaft. However, Sankey et al. fails to disclose the crimping lip **31** having radially distributed apertures oriented parallel to the longitudinal axis **A3** and sized approximately 35% to 70 % of a crimping lip thickness. Burnett teaches, in Figures 3 and 4, a crimping lip **12** having radially

Art Unit: 3679

distributed apertures **20** oriented parallel to a longitudinal axis and sized approximately 35% to 70% of a crimping lip thickness **w** to allow air to escape from a joint (col. 2, lines 25-30). Therefore, as taught by Burnett, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include radially distributed apertures oriented parallel to the longitudinal axis and size the apertures approximately 35% to 70% of the crimping lip thickness to let air escape from the joint. Applicant is reminded that the apertures **20** inherently reduce stiffness and increase compressibility of the crimping lip.

Regarding claim 3, Sankey et al., as modified above, teaches the radially distributed apertures **20** are equally circumferentially spaced apart radially distributed cut-outs.

Claims 1, 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura et al., 5,707,066, in view of Welschof et al., 4,747,805.

Regarding claim 1, Sugiura et al. disclose a constant velocity universal joint boot comprising a cylindrical neck member **3** and an annular upturned member **A2**. The cylindrical neck member **3** is at one end **A6**. The annular upturned member **A2** is at another end **A7**, defines a longitudinal axis **x**, and includes a crimping lip **6**. The boot is non-convoluted. However, the crimping lip **6** has no radially distributed apertures **2e** oriented parallel to the longitudinal axis **x**. Welschof et al. teach in Figure 4 a crimping

Art Unit: 3679

lip **2d** having radially distributed apertures **2e** oriented parallel to a longitudinal axis **1c** for increasing the resiliency of the boot (col. 3, lines 62-68). Therefore, as taught by Welschof et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the radially distributed apertures on a crimping lip to increase resiliency of a boot.

Given the modification above, the apertures **2e** in Sugiura et al. are sized approximately 35% to 70% of the crimping lip thickness **A6** (see marked-up attachment).

Regarding claim 4, Sugiura discloses the annular member **2** is formed of a thermoplastic material (col. 5, lines 3-14).

Regarding claim 8, Sugiura et al. disclose a constant velocity universal joint assembly comprising a constant velocity universal joint **41,43-45** having an outer race **41**, a boot-can **9**, and a non-convoluted thermoplastic rolling-diaphragm boot **2**. The boot-can **9** has a first end **20** and a second flanged end **18** spaced apart from the first end **20** and the outer race **41**. The boot **2** has a crimping lip **6** received by the second flanged end **18**. However, Sugiura et al. fail to disclose radially distributed apertures on the crimping lip **6**. Welschof et al. teach in Figure 4 a crimping lip **2d** having radially distributed apertures **2e** for increasing resiliency of the boot (col. 3, lines 62-68). Therefore, as taught by Welschof et al., it would have been obvious to one of ordinary



Art Unit: 3679

skill in the art at the time the invention was made to include the radially distributed apertures on a crimping lip to increase resiliency of a boot.

The apertures **2e** increase compressibility of the crimping lip such that the crimping lip has a compress thickness ratio approximately 50% to 70% of an uncompressed crimping lip thickness. Applicant is reminded that without the apertures, the crimping lip already has a compress thickness ratio approximately 50% to 70% of the uncompressed crimping lip thickness as the material inherently establishes this kind of compressibility. The introduction of the apertures **2e** will further allow compressibility thus the crimping lip will have a compressed thickness ratio approximately 50% to 70%.

Claims 8, 10, 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiura et al., 5,707,066, in view of Burnett, 3,195,360.

Regarding claim 8, Sugiura et al. disclose a constant velocity universal joint assembly comprising a constant velocity universal joint **41,43-45** having an outer race **41**, a boot-can **9**, and a non-convoluted thermoplastic rolling-diaphragm boot **2**. The boot-can **9** has a first end **20** and a second flanged end **18** spaced apart from the first end **20** and the outer race **41**. The boot **2** has a crimping lip **6** received by the second flanged end **18**. However, Sugiura et al. fail to disclose radially distributed apertures on the crimping lip **6**.

Burnett teaches, in Figures 3 and 4, a crimping lip **12** having radially distributed apertures **20** oriented parallel to a longitudinal axis to allow air to escape from a joint (col. 2, lines 25-30). Therefore, as taught by Burnett, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include radially distributed apertures oriented parallel to the longitudinal axis to let air escape from the joint. Applicant is reminded that the apertures **20** inherently increase compressibility of the crimping lip such that the crimping lip has a compressed ratio approximately 50% to 70% of an uncompressed crimping lip thickness.

Regarding claim 10, the radially distributed apertures **20** include radially distributed cut-outs.

Regarding claim 11, Sugiura et al. disclose a constant velocity universal joint and propeller shaft assembly comprising a propeller shaft **21**, a constant velocity universal joint **41,43-45**, a boot-can **9**, and a non-convoluted thermoplastic rolling-diaphragm boot **2**. The propeller shaft **21** has a first end. The constant velocity universal joint **41,43-45** including an outer race **41** having a first face **A13**. The boot-can **9** has a large-diameter end **20** and a small-diameter flanged end **18**. The boot **2** has a sealing end **5**, a tubular stem portion **8**, and an annular upturned edge **A14** crimpingly affixed to the small-diameter flanged end **18**. The joint **41,43-45** is for receiving the first end of the propeller shaft **21**. The large-diameter end **20** is for mating with the first **A13**. The tubular stem portion **8** is for receiving the propeller shaft.

Art Unit: 3679

However, Sugiura et al. fail to disclose the annular upturned edge **A14** having radially distributed apertures on a radially inward facing surface. Burnett teaches, in Figures 3 and 4, an annular upturned edge **12** having radially distributed apertures **20** on a radially inward facing surface 38 oriented parallel to a longitudinal axis to allow air to escape from a joint (col. 2, lines 25-30). Therefore, as taught by Burnett, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include radially distributed apertures oriented parallel to the longitudinal axis to let air escape from the joint. Applicant is reminded that the apertures **20** inherently increase compressibility of the annular upturned edge.

Regarding claim 13, the radially distributed apertures **20** include radially distributed cut-outs.

### ***Response to Arguments***

Applicant's arguments with respect to claims 1, 4 and 8 have been considered but are moot in view of the new ground(s) of rejection.

Art Unit: 3679

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernesto Garcia whose telephone number is 703-308-8606. The examiner can normally be reached from 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on 703-308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9326 for regular communications and 703-872-9327 for After Final communications. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-2168.

  
**Anthony Knight**  
Supervisory Patent Examiner  
Group 3600

**Lynne H. Browne**  
Supervisory Patent Examiner  
Technology Center 3600

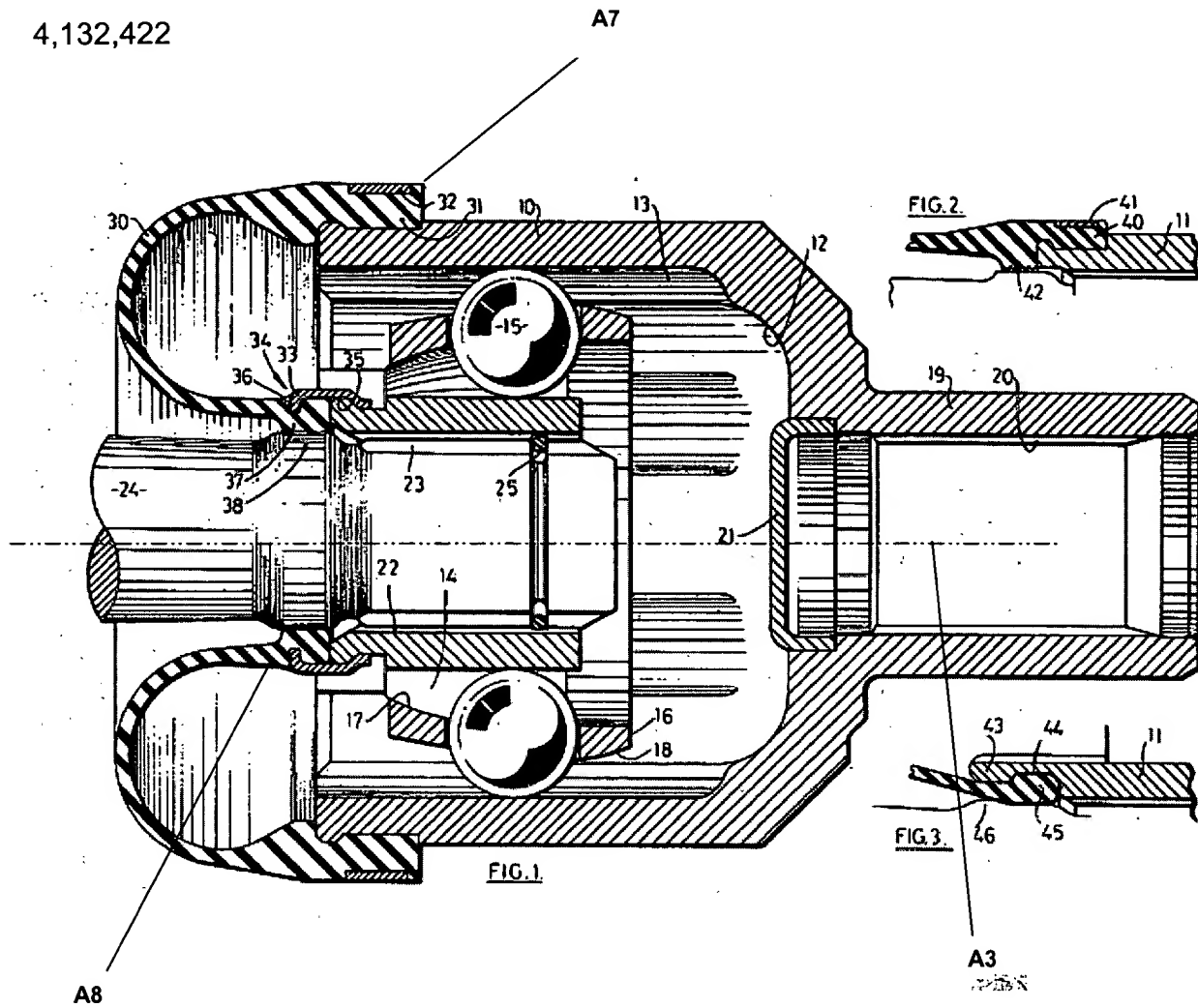
E.G.

March 18, 2004

Attachments: one marked-up copy of Sankey et al., 4,132,422;  
one marked-up copy of Welschof et al., 4,747,805; and,  
one page of applicant's specification showing page 8.

Art Unit: 3679

4,132,422



Art Unit: 3679

4,747,805 (Welschof et al.)

